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January 11, 2007

Federal Communications Commission
Washington, D.C. 20554

Re: MB Docket No. 87-268; FCC 06-150

In the Matter of

47 CFR 73
Advanced Television Systems and Their Impact Upon the Existing Television Broadcasting Service;
Seventh Further Notice of Proposed Rulemaking

Summary of Comments:

Proposals for Changes to the Allotment Table for Aurora, Illinois; Chicago, Illinois; and Madison, Wisconsin.

Gentlemen and Ladies:

I am expressing my reservations with the co-channel allocations for digital television (DTV) stations between Madison, Wisconsin and Chicago, Illinois, including Aurora, Illinois. This is "gut feeling" based on my 50 years of observing VHF signal propagation (even as a child) and 25 years of observing UHF propagation.

I had some trepidation, but made no comments when the modified transitional allotments were made placing digital channels in Chicago and Madison on each other's analog channels. After all it was only temporary. I had no concept of how bad the interference would be and how much that would degrade our television

service. (However, since the transition would be over by 2007, we gritted our teeth and lived with it. The transition isn't over yet.) So I don't think you can blame me if I am skeptical that the assumptions made in shortening the spacing distances between stations (versus the analog NTSC spacings) might be optimistic when the "rubber meets the road." There are some differences between real antennas and the "fourth-power cosine function" receiving antennas in the Longley-Rice Methodology that maintain their smooth characteristics over the entire UHF band.

My unfortunate digital into analog interference experience has me concerned that the Commission may be unwise to allow any co-channel allotments between the Chicago market stations and the Madison market. My receiving location has signals from Chicago and Madison coming in at about 135º from each other. So I am not even along the shortest distance between Madison and Chicago. The co-channel problems are probably more significant in Boone and McHenry Counties in Illinois and Walworth County in Wisconsin than here in eastern Winnebago County.

The Commission apparently feels that the co-channel spacing between the Madison and Chicago markets is sufficient by virtue of computer software modeling, which says one-size-fits-all in each of the FCC geographic zones. If computer modeling was used before granting of a low power analog station on channel 23 in Chicago with a full power co-channel in Rockford, the model missed a significant interference problem in DeKalb, Illinois. I have some grounds to be skeptical. The situation between Madison and Chicago is somewhat unusual because of the tall transmitting antennas in each market. The viewers in the areas between the Grade B contours of the Madison and Chicago stations could pick up very good analog signals with the stations being on adjacent channels, at least before the DTV stations added co-channel interference. Although beyond the protected contours of the stations involved, viewers had a stable, regularly viewable signal by virtue of line-of-sight transmission from transmitting antenna to the receiving antenna. These "beyond Grade B" viewers meant little to the revenue stream of the stations, but to those viewers this was a valuable resource available to them. And since the protected contours are basically legal constructs that are not perfectly coupled to physical reality, there have been protections afforded to these viewers as in ¶ 74.703(b) of the Rules.

With directional receiving antennas we would hope that our DTV tuners will be able to sort out Madison from Chicago co-channel stations if we can squeeze out a 15 dB difference between the signals. However, from "stage left" enters the "800-pound gorilla" called atmospheric ducting, which dwarfs receiving antenna directivity and occurs quite frequently in our area. The 8VSB DTV system is so unforgiving of signal interruptions that having an interfering signal increase of 10 to 20 dB due to ducting could easily disrupt the desired signal. For instance, if the undesired signal was 21 dB less than the desired, there is a nice 6 dB margin with the 15 dB D/U requirement for digital reception. If the undesired signal increases

by 10 dB due to ducting the D/U drops to 11 dB (21 – 10), and the desired signal cannot be deciphered, and the TV screen goes blank. With analog TV you would see the two signals fight it out, but you had a good chance of still following your desired program. Analog TV is much more prone to show the effects of interference, but it will hang in there to the bitter end. It is not so with digital TV, which in my opinion makes the co-channel interference spacing so important, particularly with the Chicago and Madison TV stations having tall transmitting antennas.

To alleviate the co-channel allotments between the Madison and Chicago markets, I looked for available channels that would apparently meet the spacing guidelines in the Rules. Lacking the horsepower of a computer program to do the search, I did this with pencil and paper. I was using geographic city locations rather than transmitter coordinates, so I admit some of these proposed allotment changes may not pass the scrutiny of the Commission's software. I apologize if some of these proposals just wind up shifting the Madison/Chicago problem into someone else's backyard. However, if I can get the Commission or the stations involved to check out these possibilities, we may be able to retain more of the original coverage in the area and prevent DTV signals from just beating each other over the head to no one's pleasure.

For the following, any combination of shifts that would prevent co-channel operation between the Chicago and Madison markets and allow the affected stations to achieve maximum coverage (no reduced power or directional antennas) is my desired result.

For Madison, Wisconsin, I propose possible shifting of channels 11, 19, and 50 to any of the following channels. I would think it to be desirable to have all the Madison market stations in the UHF band for receiving antenna purposes, making channels 9 and 10 less desirable in this list.

Channel 9
or
Channel 10
or
Channel 16, with a shift of channel 16 in Rockford to 24 or 41, which eliminates potential land mobile interference of channel 16 to channels 14 and 15 in Chicago, if that is still of concern.
or
Channel 39
or
Channel 49

For Chicago and Aurora, Illinois, I propose possible shifting of channels 11, 19, and 50 to any of the following channels.

Channel 12
or
Channel 24, mutually exclusive with a Rockford channel 16 move in the Madison proposal above
or
Channel 30
or
Channel 39, mutually exclusive with the Madison proposal above
or
Channel 41, mutually exclusive with a Rockford channel 16 move in the Madison proposal above
or
Channel 44
or
Channel 49, mutually exclusive with the Madison proposal above

As to the costs for these proposed changes, I got the impression from its Notices that the Commission was going to allow stations the choice between their temporary DTV channel and their NTSC channel. In the case of WMTV in Madison, they applied in the First Round of channel selection to go back to their NTSC channel, 15, and were not allowed to do it without a directional antenna because of channel 16 in Rockford, which was locked into channel 16 because WYIN in Gary, Indiana, was now allotted channel 17. Maybe in fairness to WMTV for burning the bridge behind them, the Commission could offset some transition costs with money received in the auctions of the relinquished television spectrum.

Like a lot of viewers I have been waiting for the prices to come down on TVs with ATSC tuners. Viewers with DTV sets may already be experiencing the problems that I can only contemplate. A local antenna installer alluded to me about viewer problems on DTV channel 19 a few years ago, but with digital tuners you cannot look at the source of interference on the TV screen, so the source of the problem could not be pinpointed as DTV into DTV interference.

I borrowed a tuner/converter three years ago to make sure Chicago DTV signals (more distant than Madison) would make it to my location. They did, so at least I know a 15 dB D/U is obtainable from Chicago. But at $300 the price was a bit steep for a tuner with some design quirks to entertain a purchase. So other than that proof of concept, I can only extrapolate from my propagation experience and my experiences with that tuner as to what might happen in these co-channel situations.

But that was enough that I felt these comments were necessary. And after all, the Commission's computer model is only a very sophisticated educated guesser.

The Commission and the co-channel stations involved have a chance to enhance the reliability of the DTV signals of those stations for the sake of the viewers. As in any consideration of how we use our spectrum, there will be the struggle of money versus best utilization of the spectrum. But let's try to make sure we've got these allotments right. I wish I had hard, firm data on this interference, but a field study is beyond my resources. Maybe the best I can get at this time is an asterisk after the allotments in question that they are awaiting further study. But letting these co-channel allotments get set into stone at this time is probably a mistake.

Sincerely,

Ronald J. Brey